МІНІСТЕРСТВО ОСВІТИ І НАУКИ, МОЛОДІ ТА СПОРТУ УКРАЇНИ
ХАРКІВСЬКА НАЦІОНАЛЬНА АКАДЕМІЯ МІСЬКОГО ГОСПОДАРСТВА

МЕТОДИЧНІ ВКАЗІВКИ
ДЛЯ САМОСТІЙНОЇ РОБОТИ
З ДИСЦИПЛІНИ «ІНОЗЕМНА МОВА»
(АНГЛІЙСЬКА МОВА)

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спеціальності «Водопостачання та водовідведення»

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UNIT 1

History of WSS Sector

Match the following words with their Russian equivalents:

1. disposal	a) римляне
2. centralized	b) правительственные учреждения
3. aqueducts	c) городское планирование
4. distribute	d) большой город с пригородами
5. integration	e) распределять
6. conurbations	f) избавление, устранение
7. private carrier	g) частное транспортное средство
8. urban planning	h) водопровод, труба
9. governmental systems	i) объединение, укрупнение
10. the Romans	j) централизованный

The supply of water and its disposal has been managed in Europe for many centuries. Centralized water supply and sanitation started with the Romans who were responsible for the construction of aqueducts and systems to collect and distribute water. During the Middle Ages water was distributed through private carriers or/and organized through local communities or cities. The industrial revolution and the construction of modern industrialized conurbations in Europe was dependent upon managed water supplies. The United Kingdom was pioneered urban planning at that time.

The time of industrialization and development of cities (between 1800-1900) in terms of WSS is called the time of simple regime followed by the regimes of lower complexity between 1900-1950, medium (1980-1970), high complexity (1970-1985) and the era finally ended up in an so called attempt of integration from 1985 onwards. The terms reflect the approach of most (Western) European countries towards WSS at that time. It steadily developed from privately organized cooperation to governmental influenced systems. Together with water management in general, it nowadays comes back to private initiatives manifested in Public-Private cooperation.

Make up a summary of the text.

Water Supply Network

Match the following words with their Russian equivalents:

1. hydrologic components	a) необработанная питьевая вода
2. hydraulic components	b) удобрения
3. to provide water supply	c) гидрологические компоненты
4. a drainage basin	d) подземные трубы
5. underground aquifer	e) отдельная система
6. untreated drinking water	f) обеспечивать водоснабжением

7. water purification facilities	g) подземный водоносный слой
8. a separate system	h) гидравлические компоненты
9. underground pipes	i) возможности очистки воды
10. fertilizers	j) бассейн (топограф.)

A water supply system or water supply network is a system of engineered hydrologic and hydraulic components which provide water supply. A water supply system typically includes:

1. A drainage basin;
2. A raw (untreated) water collection point (above or below ground) where the water accumulates, such as a lake, a river, or groundwater from an underground aquifer. Untreated drinking water (usually water being transferred to the water purification facilities) may be transferred using uncovered ground-level aqueducts, covered tunnels or underground water pipes.
3. Water purification facilities: treated water is transferred using water pipes (usually underground).
4. Water storage facilities such as reservoirs, water tanks, or water towers. Smaller water systems may store the water in cisterns or pressure vessels.
5. Additional water pressurizing components such as pumping stations may need to be situated at the outlet of underground or above ground reservoirs or cisterns.
6. A pipe network for distribution of water to the consumers (which may be private houses or industrial, commercial or institution establishments) and other usage points (such as fire hydrants)

Connections to the sewers (underground pipes, or aboveground ditches in some developing countries) are generally found downstream of the water consumers, but the sewer system is considered to be a separate system, rather than part of the water supply system.

Raw water (untreated) is collected from a surface water source (such as an intake on a lake or a river) or from a groundwater source (such as a water well drawing from an underground aquifer) within the watershed that provides the water resource.

Shallow dams and reservoirs are susceptible to outbreaks of toxic algae, especially if the water is warmed by a hot sun. The bacteria grow from stormwater runoff carrying fertilizer into the river where it acts as a nutrient for the algae. Such outbreaks render the water unfit for human consumption.

The raw water is transferred to the water purification facilities using uncovered aqueducts, covered tunnels or underground water pipes.

1. Answer the questions:

1. What is a water supply network?
2. What does it consist of?
3. What do you know about water storage facilities?
4. Where do we get raw water?
5. Why water purification is so important?

2. Ask as many questions to the text as possible. Use all types of questions.

3. Try to continue the sentences:

1. Water supply network is a system _____ .
2. Untreated drinking water may be transferred using _____ .
3. Water storage facilities are _____ .
4. A pipe network for distribution of water to the consumers may be _____ .
5. Shallow dams and reservoirs are susceptible to _____ .

Potable Water Supply

Match the following words with their Russian equivalents:

1. possible sources	a) отопление местности
2. domestic water systems	b) внутренние системы водоснабжения
3. contamination of drinking water	c) возможные источники
4. a domicile	d) приборы и устройства
5. district heating	e) кузнец
6. fixtures and appliances	f) обеспечение водоснабжением
7. to be estimated	g) разнообразие материалов
8. a running water supply	h) быть оцененным
9. a blacksmith	i) место проживания
10. a variety of materials	j) загрязнение питьевой воды

Potable water supply may come from several possible sources:

a) municipal water supply
b) water wells
c) delivered by truck
d) processed water from creeks, streams, rivers, lakes, rainwater, etc.

Domestic water systems have been evolving since people first located their homes near a running water supply, e.g., a stream or river. The water flow also allowed sending waste water away from the domiciles.

Modern indoor plumbing delivers clean, safe, potable water to each service point in the distribution system. It is imperative that the clean water not be contaminated by the waste water (disposal) side of the process system. Historically, this contamination of drinking water has been the largest killer of humans.

Domestic hot water is provided by means of water heater appliances, or through district heating. The hot water from these units is then piped to the various fixtures and appliances that require hot water, such as lavatories, sinks, bathtubs, showers, washing machines, and dishwashers.

Everything in a building that uses water falls under one of two categories: fixture or appliance. As the consumption points above perform their function, most produce waste/sewage components that will require removal by the waste/sewage side of the

system. The minimum is an air gap. Fixtures are devices that use water without an additional source of power.

The earliest known evidence of drain tile being used for plumbing was found in Mesopotamia and is estimated to have been made around 3000 BC. The tiles were made from clay mixed with short lengths of straw. Both brass and copper pipes have been found in Egypt believed to have been made close to 2500 BC. The Romans made extensive use of lead pipe by joining sheets of lead into piping to carry their water supply and waste. During the Dark Ages following the fall of the Roman Empire, plumbing development virtually ceased for centuries except for isolated cases of plumbing installed in palaces and castles. In the 13th century, blacksmiths formed sheets of iron and lap welded the seam to create iron pipe. Though it is unclear as to when galvanized iron pipe was first used, a French chemist named Melouin is credited with developing the process in 1742. The earliest known use forecast iron pipe is for the water supply to a fountain in Germany, built around 1560. In 1819 the first cast iron pipe constructed in the US, was manufactured in Weymouth, New Jersey. Before that time, cast iron pipe and fittings had to be imported from Europe. It was not until the 1960s that the hubless cast iron pipe was brought to the U.S. from Europe by way of Canada. During the early 1900s, heavy-walled copper joined with threaded fittings was in use, but limited to public buildings because of its high cost. However, during the 1930s Copper tube and fittings were developed which made copper economically feasible and increased its popularity. Polyvinyl Chloride (PVC) was produced experimentally in the 19th century but did not become practical to manufacture until 1926, when Waldo Semon of BF Goodrich Co. developed a method to plasticize PVC, making it easier to process. PVC pipe began to be manufactured in the 1940s and was in wide use during the reconstruction of Germany and Japan following WWII. Plastic supply pipes have become increasingly common, with a variety of materials and fittings employed, however plastic water pipes do not keep water as clean as copper and brass piping does. Copper pipe plumbing is bacteriostatic. This means that bacteria can't grow in the copper pipes.

The waste water from the various appliances, fixtures, and taps is transferred to the waste and sewage removal system via the sewage drain system. This system consists of larger diameter piping, water traps, and is well vented to prevent toxic gases from entering the living space. The plumbing drains and vents article discusses the topic further, and introduces sewage treatment.

1. Answer the questions:

1. What are the main possible sources of potable water supply?
2. What do you think about the history of domestic water systems? Is it ancient or modern one?
3. Why contamination of drinking water is considered to be the largest killer of humans?
4. Explain how domestic hot water is provided to the buildings?
5. When was the first iron pipe fixed?

2. Match the headings with the paragraphs:

a) Waste water
b) Potable water supply
c) Pipe materials
d) Hot water supply
e) Fixtures and appliances

3. Fill in the gaps:

1. _____ delivers clean, safe, potable water to each service point in the distribution system.
2. Historically, _____ of drinking water has been the largest killer of humans.
3. _____ of drain tile being used for plumbing was found in Mesopotamia and is _____to have been made around 3000 BC.
4. In the 13th century, blacksmiths formed _____ and lap welded the seam to_____.
5. _____ consists of larger diameter piping, water traps, and is well vented to prevent toxic gases from entering the living space.

UNIT 2

WATER POLITICS

Water As a Critical Resource

Match the following words with their Russian equivalents:

1. varied reasons	a) доступ к безопасной воде
2. prerequisite	b) требование
3. access to safe water	c) человеческое достоинство
4. physical and social health	d) предварительное условие
5. precipitation	e) выпадение осадков
6. human dignity	f) отдых, восстановление сил
7. contaminated water	g) различные причины
8. requirement	h) заражённая вода
9. starvation and death	i) физическое и социальное здоровье
10. recreation	j) голодание и смерть

Most importantly, fresh water is a fundamental requirement of all living organisms, crops, livestock and humanity included. The UNO considers access to it a basic human right and a prerequisite for peace. UN Secretary-General Kofi Annan stated in 2001, “Access to safe water is a fundamental human need and, therefore, a basic human right. Contaminated water jeopardizes both the physical and social health of all people. It is an affront to human dignity.” With increased development, many industries, including forestry, agriculture, mining, manufacturing and

recreation require sizable additional amounts of freshwater to operate. This, however, has led to increases in air and water pollution, which in turn have reduced the quality of water supply. More sustainable development practices are advantageous and necessary.

According to the WHO, each human being requires a bare minimum of 20 litres of fresh water per day for basic hygiene; this equals 7.3 cubic metres per person, per year. Based on the availability, access and development of water supplies, the specific usage figures vary widely from country to country, with developed nations having existing systems to treat water for human consumption, and deliver it to every home. At the same time however, some nations across Latin America, parts of Asia, South East Asia, Africa and the Middle East either do not have sufficient water resources or have not developed these or the infrastructure to the levels required. This occurs for many varied reasons. It has resulted in conflict and often results in a reduced level or quantity of fresh water per capita consumption; this situation leads toward disease, and at times, to starvation and death.

The source of virtually all freshwater is precipitation from the atmosphere, in the form of mist, rain and snow, as part of the water cycle over eons, millennia and in the present day. Freshwater constitutes only 3% of all water on Earth, and of that, slightly over two thirds is stored frozen in glaciers and polar ice caps. The remaining unfrozen freshwater is mainly found as groundwater, with only a small fraction present in the air, or on the ground surface. Surface water is stored in wetlands or lakes or flows in a stream or river, and is the most commonly utilized resource for water. In places, surface water can be stored in a reservoir behind a dam, and then used for municipal and industrial water supply, for irrigation and to generate power in the form of hydroelectricity. Sub-surface groundwater, although stored in the pore space of soil and rock; it is utilized most as water flowing within aquifers below the water table. Groundwater can exist both as a renewable water system closely associated with surface water and as a separate, deep sub-surface water system in an aquifer. This latter case is sometimes called "fossil water", and is realistically non-renewable. Normally, groundwater is utilized where surface sources are unavailable or when surface supply distribution is limited.

1. Ask as many questions to the text as possible. Use all types of questions.

2. Fill in the gaps, using the text:

1. Fresh water is _____ of all living organisms, crops, livestock and humanity included.
2. Many industries, including _____, _____, _____, _____, _____ require sizable additional amounts of freshwater to operate.
3. Some nations across Latin America either do not have _____ _____ _____ or have not developed these or the infrastructure to the levels required.
4. _____ constitutes only 3% of all water on Earth.
5. _____ _____ is stored in wetlands or lakes or flows in a stream or river.

Water Conflict

Match the following words with their Russian equivalents:

1. international boundaries	a) источник
2. to be responsible for	b) возникать
3. to arise	c) быть ответственным за
4. local communities or cities	d) обессоливание воды
5. a source of tension	e) обеспечивать сотрудничеством
6. water desalination	f) международные границы
7. strategic advantage	g) местные сообщества или города
8. humanitarian catastrophes	h) людские катастрофы
9. to promote cooperation	i) эффективность учреждения
10. an effectiveness of an institution	j) стратегическое преимущество

Water conflict is a term describing a conflict between countries, states, or groups over an access to water resources. The United Nations recognizes that water disputes result from opposing interests of water users, public or private.

A wide range of water conflicts appear throughout history, though rarely are traditional wars waged over water alone. Instead, water has historically been a source of tension and a factor in conflicts that start for other reasons. However, water conflicts arise for several reasons, including territorial disputes, a fight for resources, and strategic advantage.

These conflicts occur over both freshwater and saltwater, and between international boundaries. However, conflicts occur mostly over freshwater; because freshwater resources are necessary, yet limited, they are the center of water disputes arising out of need for potable water. As freshwater is a vital, yet unevenly distributed natural resource, its availability often impacts the living and economic conditions of a country or region. The lack of cost-effective water desalination techniques in areas like the Middle East, among other elements of water crises can put severe pressures on all water users, whether corporate, government, or individual, leading to tension, and possibly aggression. Recent humanitarian catastrophes, such as the Rwandan Genocide or the war in Sudanese Darfur, have been linked back to water conflicts.

Sharing water promotes collaboration too.

While conventional wisdom has it that conflict over water leads to war, there is also evidence that sharing water resources can promote cooperation between neighboring nations. Scientists at the International Water Management Institute working in partnership with Aaron Wolf at Oregon State University have been investigating the evidence behind 'water wars' predictions. Their findings show that, while it is true that there has been conflict related to water in a handful of international basins, in the rest of the world's 300 or so shared catchments, the experience has been largely positive. There are hundreds of treaties in place guiding equitable use of water resources between nations, and the institutions created by such agreements are instrumental in ensuring peace and cooperation rather than conflict.

The researchers found that places which generally cooperated with each other, usually also cooperated over water. In places where conflicts existed, such as the Middle East, there were often other causes for disagreement. So the water situation didn't help but it wasn't the main cause of the conflict.

The International Union for the Conservation of Nature (IUCN) published the book Share: Managing water across boundaries. One chapter covers the functions of trans-boundary institutions and how they can be designed to promote cooperation, overcome initial disputes and find ways of coping with the uncertainty created by climate change. It also covers how the effectiveness of such institutions can be monitored.

1. Answer the questions:

1. What is a water conflict?
2. Why water conflicts arise?
3. Is freshwater a main reason for conflicts to occur?
4. What showed the finding of the scientists concerning the conflict?
5. What is a contribution of the International Union for the Conservation of Nature to solve the problem?

2. Complete the sentences, using the text:

1. Water conflict is a term _____.

2. Conflicts occur mostly over freshwater because freshwater resources are _____.
3. As freshwater is a vital, its availability often impacts _____.
4. Recent humanitarian catastrophes are _____.
5. One chapter of the International Union for the Conservation of Nature book covers the functions of _____and how they can be designed to _____.

3. Make up a short summary of the text.

Water Conflict Causes

Match the following words with their Russian equivalents:

1. scarcity	a) международные границы
2. growing threat	b) права человека
3. development of the environment	c) справиться эффективно
4. to manage effectively	d) возобновляемый ресурс
5. a renewable resource	e) многочисленные виды
6. outright conflict	f) растущая угроза
7. production of commercial goods	g) открытый конфликт
8. human rights	h) развитие окружающей среды
9. international boundaries	i) недостаток, нехватка
10. numerous types	j) производство коммерческих товаров

"Scarcity and misuse of fresh water pose a serious and growing threat to sustainable development and protection of the environment. Human health and welfare, food security, industrial development and the ecosystem on which they depend, are all at risk, unless water and land resources are managed more effectively in the present decade and beyond that they have been in the past". Water is a vital element for human life, and any human activity relates somehow to water. Unfortunately, it is not a renewable resource and in the future there will be lot of water problems. Moreover, some people state that future wars will be fought for water.

Water conflicts occur because the demand for water resources and potable water extend far beyond the amount of water actually available. Elements of a water crisis may put pressures on affected parties to obtain more of a shared water resource, causing diplomatic tension or outright conflict.

1.1 billion people are without adequate drinking water; the potential for water disputes is correspondingly large. Besides life, water is necessary for proper sanitation, commercial services, and the production of commercial goods. Thus numerous types of parties can become implicated in a water dispute. For example, corporate entities may pollute water resources shared by a community, or governments may argue over who gets access to a river used as an international or inter-state boundary.

The broad spectrum of water disputes makes them difficult to address. Locale, local and international law, commercial interests, environmental concerns, and human rights questions make water disputes complicated to solve – combined with the sheer number of potential parties, a single dispute can leave a large list of demands to be met by courts and lawmakers.

Water's viability as a commercial resource, which includes fishing, agriculture, manufacturing, recreation and tourism, among other possibilities, can create dispute even when access to potable water is not necessarily an issue. As a resource, some consider water to be as valuable as oil, needed by nearly every industry, and needed nearly every day. Water shortages can completely cripple an industry just as it can cripple a population, and affect developed countries just as they affect countries with less-developed water infrastructure. Water-based industries are more visible in water disputes, but commerce at all levels can be damaged by a lack of water.

International commercial disputes between nations can be addressed through the World Trade Organization, which has water-specific groups like a Fisheries Center that provide a unified judicial protocol for commercial conflict resolution. Still, water conflict occurring domestically, as well as conflict that may not be entirely commercial in nature may not be suitable for arbitration by the WTO.

Historically, fisheries have been the main sources of question, as nations expanded and claimed portions of oceans and seas as territory for 'domestic' commercial fishing. Certain lucrative areas, such as the Bering Sea, have a history of dispute; in 1886 Great Britain and the United States clashed over sealing fisheries, and today Russia surrounds a pocket of international water known as the Bering Sea

Donut Hole. Conflict over fishing routes and access to the hole was resolved in 1995 by a convention referred to colloquially as the Donut Hole Agreement.

Corporate interest often crosses opposing commercial interest, as well as environmental concerns, leading to another form of dispute. In the 1960s, Lake Erie, and to a lesser extent, the other Great Lakes were polluted to the point of massive fish death.

Water pollution poses a significant health risk, especially in heavily industrialized, heavily populated areas like China. In response to a worsening situation in which entire cities lacked safe drinking water, China passed a revised Water Pollution Prevention and Control Law. The possibility of polluted water making its way across international boundaries, as well as unrecognized water pollution within a poorer country brings up questions of human rights, allowing for international input on water pollution. There is no single framework for dealing with pollution disputes local to a nation.

1. Answer the questions:

1. Does human health and welfare dramatically depend on water quality?
2. Why many people forecast that in future there will be water problems?
3. What is water necessary for?
4. What do you know about water pollution?
5. Do you think industries are dependable on water and its availability?

2. Complete the sentences, using the text:

1. Water is not a renewable resource and in the future there will be _____ .
2. Water conflicts occur because the demand for water resources and potable water _____ .
3. The broad spectrum of water disputes makes them _____ .
4. Corporate interest often crosses opposing _____ .
5. Water pollution poses _____ .

3. Match the headings with the paragraphs:

a) Economic and trade issues
b) Pollution
c) Water is a vital element
d) Fishing

Classifications of Water Conflict Causes

Match the following words with their Russian equivalents:

1. transboundary	a) население земного шара
2. interactions	b) научные усилия
3. extremes	c) Всемирная Торговая Организация
4. cooperative	d) сельскохозяйственная торговля
5. scientific efforts	e) нехватка воды
6. global population	f) взаимодействие

7. World Trade Organization	g) внутригосударственный конфликт
8. agricultural trade	h) совместный
9. water shortages	i) заграничный
10. intrastate conflict	j) противоположность, крайность

According to Aaron Wolf there were 1831 water conflicts over transboundary basins from 1950–2000. They categorized these events as following:

1) No water-related events on the extremes
2) Most interactions are cooperative
3) Most interactions are mild
4) Water acts as irritant
5) Water acts as unifier
6) Nations cooperate over a wide variety of issues
7) Nations conflict over quantity and infrastructure

International organizations play the largest role in mediating water disputes and improving water management. From scientific efforts to quantify water pollution, to the World Trade Organization's efforts to resolve trade disputes between nations, the varying types of water disputes can be addressed through current framework. Yet water conflicts that go unresolved become more dangerous as water becomes more scarce and global population increases.

The World Trade Organization can arbitrate water disputes presented by its member states when the disputes are commercial in nature. The WTO has certain groups, such as its Fisheries Center, that work to monitor and rule on relevant cases, although it is by no means the authority on conflict over water resources.

Because water is so central to agricultural trade, water disputes may be subtly implicated in WTO cases in the form of virtual water; water used in the production of goods and services but not directly traded between countries. Countries with greater access to water supplies may fare better from an economic standpoint than those facing crisis, which creates the potential for conflict. Outraged by agriculture subsidies that displace domestic produce, countries facing water shortages bring their case to the WTO.

The WTO plays more of a role in agriculturally-based disputes that are relevant to conflict over specific sources of water. Still, it provides an important framework that shapes the way water will play into future economic disputes. One school of thought entertains the notion of war over water, the ultimate progression of an unresolved water dispute—scarce water resources combined with the pressure of exponentially increasing population may outstrip the ability of the WTO to maintain civility in trade issues.

Water conflicts can occur on the intrastate and interstate levels. Interstate conflicts occur between two or more neighboring countries that share a transboundary water source, such as a river, sea, or groundwater basin. For example, the Middle East has only 1% of the world's freshwater shared among 5% of the world's population. Intrastate conflicts take place between two of more parties in the same

country. An example would be the conflicts between farmers and industry (agricultural is industrial use of water).

According to UNESCO, the current interstate conflicts occur mainly in the Middle East (disputes stemming from the Euphrates and Tigris Rivers among Turkey, Syria, and Iraq; and the Jordan River conflict among Israel, Lebanon, Jordan and the Palestine territories), in Africa (Nile River-related conflicts among Egypt, Ethiopia, and Sudan), as well as in Central Asia (the Aral Sea conflict among Kazakhstan, Uzbekistan, Turkmenistan, Tajikistan and Kyrgyzstan). At a local level, a remarkable example is the 2000 Cochabamba protests, depicted in the 2010 Spanish film Even the Rain by Iciar Bollain.

Some analysts estimate that due to an increase in human consumption of water resources, water conflicts will become increasingly common in the near future.

1. Ask as many questions to the text as possible. Use all types of questions.

2. Match the headings with the paragraphs:

a) World Trade Organization
b) Notable conflicts
c) Response
d) Intrastate and interstate conflicts

3. Match the following words with their meanings:

1. interactions	a) something is less than expected or requires
2. irritant	b) a mutual action
3. cooperative	c) a great assortment
4. variety	d) involving the joint activity of two or more
5. shortages	e) something that causes annoyance

Water Politics

1. Read English words and phrases with their Russian equivalents:

Water politics –	политика использования воды
quantity and quality –	количество и качество
limited availability –	ограниченная доступность
mass consumption –	массовое потребление
strategic natural resource –	стратегический природный ресурс
contaminated water –	заражённая вода
minimal hygiene –	минимальная гигиена
tangible health benefits –	заметная польза для здоровья
sewage disposal –	сброс сточных вод
water-related diseases –	заболевания, связанные с качеством воды
high-tech manufacturing –	предприятия с высокими технологиями

Water politics, sometimes called hydropolitics, is politics affected by the availability of water and water resources, a necessity for all life forms and human development.

The availability of drinking water per capita is inadequate and shrinking worldwide. The causes, related to both quantity and quality, are many and varied; they include local scarcity, limited availability and population pressures, but also human activities of mass consumption, misuse, environmental degradation and water pollution, as well as climate change. Water's essential nature makes it a strategic natural resource globally, and in its absence, an important element of political conflicts in many areas, historically. With decreasing availability and increasing demand for water, some have predicted that clean water will become the "next oil"; making countries like Canada, Chile, Norway, Colombia and Peru, with this resource in abundance, the water-rich countries in the world. The UN World Water Development Report (WWDR) from the World Water Assessment Program indicates that, in the next 20 years, the quantity of water available to everyone is predicted to decrease by 30%. Currently, 40% of the world's inhabitants have insufficient fresh water for minimal hygiene. More than 2.2 million people died in 2000 from diseases related to the consumption of contaminated water or drought. In 2004, the UK charity Water Aid reported that a child dies every 15 seconds from easily preventable water-related diseases; often this means lack of sewage disposal; see toilet. The United Nations Development Programmer sums up world water distribution in the 2006 development report: "One part of the world sustains a designer bottled water market that generates no tangible health benefits; another part suffers acute public health risks because people have to drink water from drains or from lakes and rivers." Fresh water — now more precious than ever in our history for its extensive use in agriculture, high-tech manufacturing, and energy production — is increasingly receiving attention as a resource requiring better management and sustainable use.

Riparian water rights have become issues of international diplomacy, in addition to domestic and regional water rights and politics. World Bank Vice President Ismail Serageldin predicted, "Many of the wars of the 20th century were about oil, but wars of the 21st century will be over water". This is debated by some, however, who argue that disputes over water usually are resolved by diplomacy and do not turn into wars

1. Answer the questions:

1. What is hydropolitics?
2. What are the causes, related to both water quantity and quality?
3. What do you think about water pollution? Is it really so dangerous?
4. What is the statistics on people`s death because of the water shortage or its contamination?
5. What does the UN World Water Development Report indicate about next 20 years?

2. Fill in the gaps:

1. Water politics is politics affected by _____ .
2. The availability of drinking water per capita is _____ .
3. The causes, related to both _____ of water, are _____.

4. More than _____ died in 2000 from diseases related to the consumption of contaminated water or drought.
5. With _____ availability and _____ demand for water, some have predicted that clean water will become the "next oil".

Water Politics by Country

Translate the following words and expressions:

Per year, water consumption per capita, an average person, amount of water, an important strategic resource, the Arabian Peninsula, to decrease their overall water use, an international border.

With nearly 2,000 cubic meters of water used per person per year, the United States leads the world in water consumption per capita. Among the developed countries, the U.S. is highest in water consumption, then Canada with 1,600 cubic meters of water per person per year, which is about twice the amount of water used by the average person from France, three times as much as the average German, and almost eight times as much as the average Dane. In contrast, nine nations were able to decrease their overall water use since 1980 (Sweden, the Netherlands, the United States, the United Kingdom, the Czech Republic, Luxembourg, Poland, Finland and Denmark).

In Mexico City, an estimated 40% of the city's water is lost through leaky pipes built at the turn of the 20th century.

In the Middle East, water is an important strategic resource and political issue. By 2025, it is predicted that the countries of the Arabian Peninsula will be using more than double the amount of water naturally available to them. According to a report by the Arab League, two-thirds of Arab countries have less than 1,000 cubic meters of water per person per year available, which is considered the limit.

Within the Middle East, all major rivers cross at least one international border, with rivers like the Tigris and Euphrates crossing through three major Middle Eastern nations. This means that the nations, cities and towns downstream from the next are hugely affected by the actions and decisions of other groups they have little practical control over. In particular this is evident with the cutting of water supply from one nation to the next, just as issues of air pollution affect the states surrounding that which is producing the pollution initially. It is believed that up to 50% of water required for any specific state within the Middle East finds its source in another state.

With substantial, but falling rates of fertility, the issue of water distribution in the Middle East will not be easily dismissed.

In South America, the Guarani Aquifer, located between the countries of Argentina, Brazil, Bolivia and Paraguay, with a volume of about 40,000 km, is an important source of fresh potable water for all four countries.

1. Fill in the gaps:

1. Among the developed countries, the U.S. is _____in water consumption, with nearly _____ of water used per person per year.
2. _____, _____, _____, _____, _____ were able to decrease their overall water use since 1980.
3. In the Middle East, water is an important _____ _____ and _____ issue.
4. Two-thirds of Arab countries have less than _____ _____ _____ of water per person per year available.
5. The Guarani Aquifer, located between the countries of Argentina, Brazil, Bolivia and Paraguay, is an important source of fresh potable water for all four countries.

3. Ask as many questions to the text as possible. Use all types of questions.

UNIT 3

Water Supply And Sanitation (WSS) In Different Countries

Water Supply and Sanitation in Spain

Read and translate words and phrases:

universal access, mixed private-public water companies, half of the population, municipality, a market share, seawater desalination, urban population, rural population , policy and regulation functions, undertaking hydrological studies.

Water supply and sanitation in Spain is characterized by universal access and generally good service quality, while tariffs are among the lowest in the EU. Almost half of the population is served by private or mixed private-public water companies, which operate under concession contracts with municipalities. The largest of the private water companies, with a market share of about 50% of the private concessions, is Agues de Barcelona. However, the large cities are all served by public companies except Barcelona and Valencia.

Droughts affect water supply in Southern Spain, which increasingly is turning towards seawater desalination to meet its water needs.

Access to water supply and sanitation in Spain is universal. 98% of the urban population and 93% of the rural population is connected to sewers, while the remainder is served by on-site sanitation systems such as septic tanks.

Data about water sources and use vary according to the source of information. According to the utility association, about 74% of municipal water supply originates in surface water, only 19% in groundwater, and 7% in springs and desalination. This figure may include non-revenue water.

About 20% of treated wastewater in Spain is being reused, primarily for irrigation and landscaping.

A cornerstone of the legal framework for water supply and sanitation is the 1985 Water Law. Policy and regulation functions for water supply and sanitation are shared among various Ministries. For example, the Ministry of Environment is in charge of water resources management and the Ministry of Health is in charge of drinking water quality monitoring.

Basin Agencies are in charge of planning, constructing and operating major water infrastructure such as dams; elaborating basin plans; setting water quality targets, as well as monitoring and enforcing them; granting permits to use water, as well as inspecting water facilities for which permits were granted; undertaking hydrological studies; and to provide advisory services to other entities at their request. Basin Agencies are headed by a President who is nominated by the Cabinet at the proposal of the Minister of Environment. Each agency has a Board, a user assembly and a council to ensure broad participation by various stakeholders in its decision-making process, both in planning and operations. There are a total of 15 Basin Agencies in Spain for rivers that flow through more than one autonomous community. If a river runs entirely within the territory of an autonomous community the water administration of the respective autonomous community, instead of one of the basin agencies, is in charge of managing its water resources. This is the case in Galicia, Cataluna, the Balearic Islands, the Canary Islands, the Basque country and Andalusia.

While basin agencies do not provide water and sanitation services, they play an important role in determining the framework for the provision of such services.

Service provision is the responsibility of the more than 8,000 municipalities of Spain. Municipalities can provide services directly or through a municipal public company (54% of market share), or through concessions to a mixed public-private company (13%) or a private company (33%). In some cities water supply is the responsibility of a company, while sanitation services are provided directly by the municipality. This is the case, for example, in Barcelona and was the case in Madrid until 2008.

The main water service provider in Spain is Aguas de Barcelona (Agbar), a private company that provides water services to about 13 million people in more than 1,000 localities under concession contracts. Sewer services are provided to 8.25 million people in 365 localities, and wastewater treatment is carried out for 9.3 million people in 445 localities. The largest public water company is Canal Isabel II that serves the metropolitan area of Madrid.

The AEAS study says that a cup of coffee costs as much as 2.3 days of water supply. The average water and sanitation bill of Euro 191 per year accounts for only 0.6% of household expenditures.

92% of Spanish cities used increasing-block tariffs, i.e. the tariff per cubic meter increases as consumption increases. Many cities had a large fixed fee that included a consumption of between 60 and 180 cubic meter per year, thus providing no financial incentive to save water below this level.

The Ministry of Environment estimates the cost recovery for water supply and sanitation at "between 50% and 90%".

Spain spends €6,330 million annually on the capture, transport and extraction of underground water, plus water distribution and sanitation. However, the industry association estimates investments by its members, which supply water to 75% of the population, at "more than €290 million" annually.

The European Union is a major financier of the Spanish water and sanitation sector, both through grants by the European Commission and through loans from the European Investment Bank.

Match the headings with the paragraphs:

1. Investment.
2. Affordability.
3. General characteristics of WSS.
4. Financing.
5. Tariff structure.
6. Service provision.
7. Responsibility for water supply and sanitation.
8. Policy and regulation.
9. Links to water resources.

Fill in the gaps:

1. The largest of the_____ _____ _____, with a market share of about 50% of the private concessions, is Aguas de Barcelona.
2. _____ and _____ functions for water supply and sanitation are shared among various Ministries.
3. About _____% of municipal water supply originates in surface water, only _____ in groundwater, and 7% in springs and desalination.
4. _____ _____ is a major financier of the Spanish water and sanitation sector, both through grants by the _____ _____ and through loans from the_____ _____ _____ .

Water Supply and Sanitation (WSS) in Latin America

Match the following words with their Russian equivalents:

1. insufficient access	a) качество услуг
2. poor service quality	b) общественное здоровье
3. public health	c) поставщики услуг
4. financing of sanitation	d) доля населения
5. World Health Organization	e) недостаточный доступ
6. share of population	f) обильный , богатый
7. service providers	g) коммунальные услуги
8. abundant	h) жалкое качество услуг

9. utilities	i) финансирование
10. quality of service	j) Всемирная Организация Здоровья

Water supply and sanitation in Latin America is characterized by insufficient access and in many cases by poor service quality, with detrimental impacts on public health. Water and sanitation services are provided by a vast array of mostly local service providers under an often fragmented policy and regulatory framework. Financing of water and sanitation remains a serious challenge.

Access to water and sanitation remains insufficient, in particular in rural areas and for the poor. It also differs substantially among and within countries. According to the Joint Monitoring Program of the World Health Organization and UNICEF, in 2004 the share of population which was connected to an improved water source varied from 54% in Haiti to 100% in Uruguay. All together, 50 million people or 9% of the population of Latin America and the Caribbean did not have access to improved water supply, and 125 million or 23% did not have access to improved sanitation. Increasing access remains a challenge, in particular given the poor financial health of service providers and fiscal constraints on behalf of central and local governments.

As far as sanitation is concerned, only 51% of the population has access to sewers. Only an estimated 15% of the collected wastewater finds its way into wastewater treatment plants, which often are not properly functioning. 26% of the population has access to forms of sanitation other than sewers, including septic tanks and various types of latrines, a level that is about as high as in the United States and almost twice as high as in Central Europe. The highest water use can be found in some utilities in Chile and Argentina, where water resources are abundant and water use is almost 500 liter/capita/day. The lowest water use is in the capital of Bolivia, with less than 50 liter/capita/day. In rural areas water use is sometimes even lower than this level.

Even for those having access to water supply, poor quality of service is often experienced, in the form of intermittent supply, low pressure and poor drinking water quality. However, differences in service quality between countries and between cities in Latin America are vast, and some service providers achieve a quality of service on par with developed countries.

Responsibility for water supply and sewerage service provision in Latin American countries is vested either in municipalities, or in regional or national companies. Municipalities are in charge of water and sanitation service provision in Brazil, Colombia, Ecuador, Guatemala, Mexico and Peru. While in most cases the companies are public, in a few notable cases they are mixed or private companies operating under concession, lease or management contracts. Chile and Venezuela are examples of countries that have created regional water companies; however, in the case of Venezuela, the United Nations reports that Venezuela remains one of the poorest in water service provision in this region. National public water and sewer companies, which have for the most part been created in the 1960s and 1970s, still exist in Costa Rica, the Dominican Republic, El Salvador, Haiti, Panama, Paraguay

and Uruguay. About 90% of urban water and sanitation services in Latin America are provided by public entities. Many private concession contracts signed during the 1990s in Latin America have been either renegotiated or cancelled. Private and mixed companies, however, continue to provide services in many cities of Colombia, in most of Chile, some Brazilian cities, and in Guayaquil, Ecuador.

In rural areas, the provision of water services is usually the responsibility of community organizations.

Supporting the numerous community organizations that provide water and sanitation services in Latin America - mainly in rural areas - is a key public function that is often underestimated and neglected. Responsibility for this function, if it is defined at all, can be assigned to a government Ministry and its regional branches, a Social Fund or municipalities.

There are wide differences in the operational efficiency among urban water and sanitation utilities in Latin America. The two most common measures of operation efficiency are labor productivity and water losses. In terms of labor productivity, the most productive utilities have less than 2 employees per 1000 connections.

Without continuous supply, reliably good drinking water quality, and the prevention of sewer overflows, health is endangered and – especially if customer service is poor and billing complaints not resolved swiftly – it is difficult to justify a higher degree of cost recovery.

1. Answer the questions:

1. How would you characterize water supply and sanitation in Latin America?
2. What part of the population has access to sewers?
3. Which countries have the highest water use?
4. What is a government Ministry and its regional branches responsible for?
5. Are there any differences in the operational efficiency among urban water and sanitation utilities in Latin America?

2. Match the headings with the paragraphs:

a) Improving service quality.
b) Quality of service
c) Access to water and sanitation
d) Efficiency
e) Service provision
f) Features of water supply and sanitation in Latin America

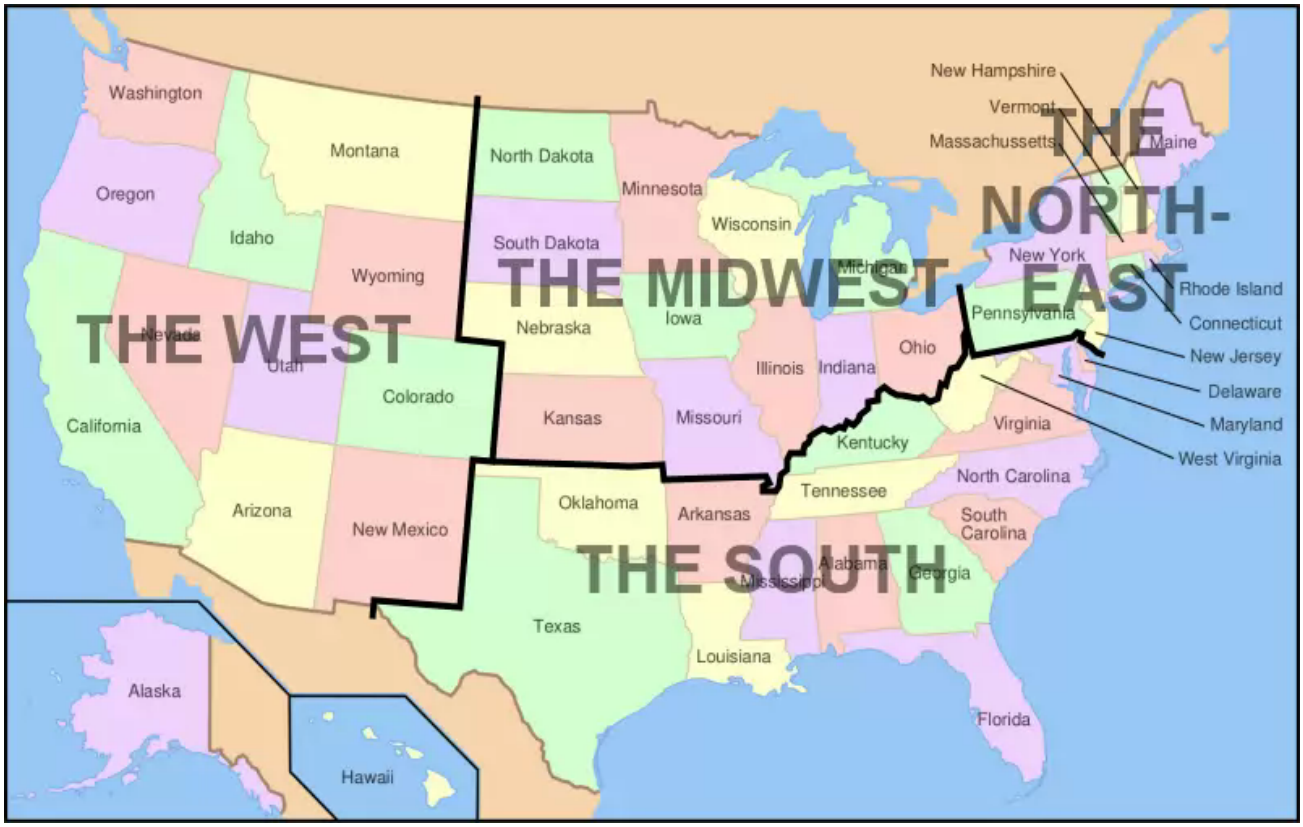
3. Fill in the gaps:

1. Water _____and _____in Latin America is characterized by_____ .
2. In rural areas access to water and sanitation remains _____.
3. _____ million people or _____ of the population of Latin America and the Caribbean did not have access to _____.

4. _____ for water supply and sewerage service provision in Latin American countries is vested in municipalities or in _____or _____ companies.
5. _____ and_____ are examples of countries that have created regional water companies.
6. National public water and sewer companies still exist in _____ .
7. _____ are in charge of water and sanitation service provision in Brazil, Colombia, Ecuador, Guatemala, Mexico and Peru.
8. _____ continue to provide services in many cities of Colombia, in most of Chile, some Brazilian cities, and in Guayaquil, Ecuador.
9. There are _____ in the operational efficiency among urban water and sanitation utilities in Latin America.
10. It is difficult to justify _____ .

UNIT 4.

WATER SUPPLY AND SANITATION IN THE UNITED STATES.




Washington
Oregon
California
Nevada
Idaho
Montana
Wyoming
Utah
Arizona
Colorado
New Mexico
North Dakota
South Dakota
Nebraska
Kansas
Oklahoma
Texas
Minnesota
Iowa
Missouri
Arkansas
Louisiana
Wisconsin
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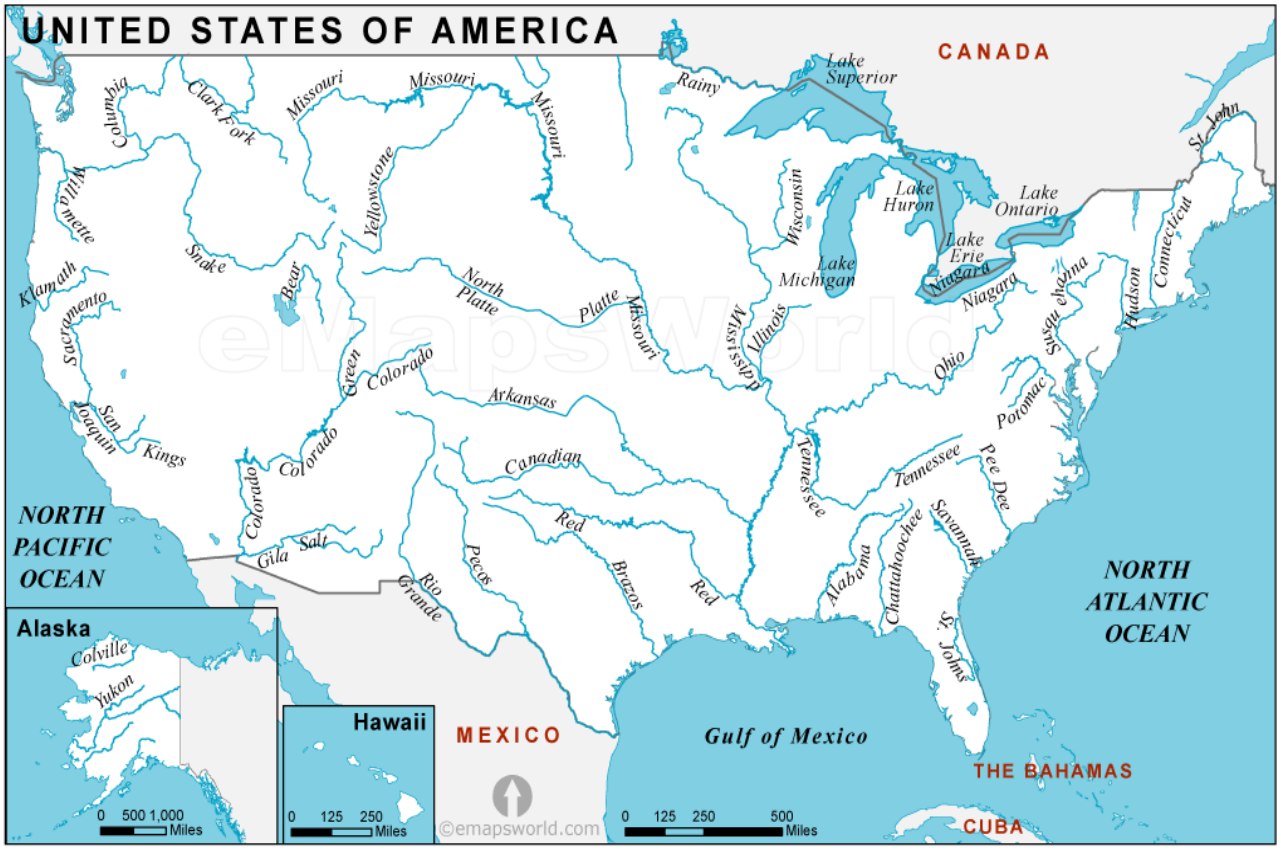
UNITED STATES OF AMERICA
CANADA
NORTH PACIFIC OCEAN
NORTH ATLANTIC OCEAN
MEXICO
Gulf of Mexico
THE BAHAMAS
CUBA
Alaska
Hawaii
Columbia
Clark Fork
Missouri
Yellowstone
Rainy
Lake Superior
St. John
Willamette
Snake
Klamath
Sacramento
Bear
North Platte
Platte
Wisconsin
Lake Huron
Lake Ontario
Lake Erie
Niagara
Lake Michigan
Hudson
Connecticut
Susquehanna
Illinois
Mississippi
Ohio
Green
Colorado
Arkansas
San Joaquin
Kings
Canadian
Red
Brazos
Pecos
Rio Grande
Gila
Salt
Tennessee
Potomac
Pee Dee
Savannah
Alabama
Chattahoochee
St. Johns
Colville
Yukon
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0 125 250 500 Miles
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US Rivers
Columbia
Columbia
Missouri
Yellowstone
Snake
Sacramento
Missouri
Mississippi
Connecticut
Illinois
Wabash
Susquehanna
Platte
Green
Ohio
Arkansas
Missouri
San Joaquin
Colorado
Canadian
Tennessee
Rio Grande
Gila
Red
Brazos
Pecos
Mississippi
Chattahoochee
Rio Grande
N
W
E
S
500 miles
Key
State border
River
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***Make sure you know these words*:**

(water) scarcity	- недостаток, нехватка
Consequence	- (по)следствие, результат
Utilities	- коммунальные предприятия
face with	- сталкиваться лицом к лицу(с чем-л.)
reuse	- повторное использование
keep pace with	- идти наравне с (чем-л)
discharge	- расход (воды)
consumption	- потребление; затрата
sewerage	-канализация,канализационная система

Issues that affect water supply and sanitation in the United States include water scarcity, pollution, a backlog of investment, concerns about the affordability of water for the poorest, and a rapidly retiring workforce. Increased variability and intensity of rainfall as a result of climate change is expected to produce both more severe droughts and flooding, with potentially serious consequences for water supply and for pollution from combined sewer overflows. Droughts are likely to particularly affect the 66 percent of Americans whose communities depend on surface water. As for drinking water quality, there are concerns about disinfection by-products, lead, perchlorates and pharmaceutical substances, but generally drinking water quality in the U.S. is good.

Cities, utilities, state governments and the federal government have addressed the above issues in various ways. To keep pace with demand from an increasing population, utilities traditionally have augmented supplies. However, faced with increasing costs and droughts, water conservation is beginning to receive more attention and is being supported through the federal Water Sense program. The reuse of treated wastewater for non-potable uses is also becoming increasingly common. Pollution through wastewater discharges, a major issue in the 1960s, has been brought largely under control.

Most Americans are served by publicly owned water and sewer utilities. Eleven percent of Americans receive water from private (so-called “investor-owned”) utilities. In rural areas, cooperatives often provide drinking water. Finally, up to 15 percent of Americans are served by their own wells. Water supply and wastewater systems are regulated by state governments and the federal government. At the state level, health and environmental regulation is entrusted to the corresponding state-level departments. Public Utilities Commissions or Public Service Commissions regulate tariffs charged by private utilities. In some states they also regulate tariffs by public utilities. At the federal level, drinking water quality and wastewater discharges

are regulated by the United States Environmental Protection Agency, which also provides funding to utilities through State Revolving Funds.

Water consumption in the United States is more than double that in Central Europe, with large variations among States. In 2002 the average American family spent $474 on water and sewerage charges, which is about the same level as in Europe. The median household spent about 1.1 percent of its income on water and sewerage.

1. Read the Text and decide if the statements after it are true (T) or false (F).

1. Increased variability and intensity of rainfall as a result of climate change is expected to produce both less severe droughts and flooding. ( )
2. Droughts are likely to particularly affect the 66 percent of Americans whose communities depend on underground water. ( )
3. Faced with increasing costs and droughts, water conservation is beginning to receive more attention and is being supported through the federal Water Sense program. ( )
4. Pollution through wastewater discharges, a major issue in the 1960s, hasn't been brought largely under control. ( )
5. Water supply and wastewater systems are regulated by local governments and the federal government. ( )
6. At the state level, health and environmental regulation is entrusted to the corresponding state-level departments. ( )
7. In 2002 the average American family spent $704 on water and sewerage charges, which is about the same level as in Europe. ( )

2. Write down some sentences about the article "Water supply and sanitation in the United States" beginning the phrases below.

The headline of the article is **……**

It deals with …….

The article widely covers the problem of ……

It carries information on ……..

The paper describes …….

In conclusion ……

History.

Make sure you know these words:

afflict with - беспокоить (with)
outbreaks of disease - вспышка болезни
erroneous belief - ложная вера

to prevail - преобладать, господствовать
dilution - растворение, разведение
consciousness - сознание
revolving fund -возобновляемый фонд (*фонд,средства которого постоянно используются, а потом вновь пополняются до начальной суммы)*

In the 19th century numerous American cities were afflicted with major outbreaks of disease, including cholera in 1832, 1849 and 1866 and typhoid in 1848. The fast-growing cities did not have sewers and relied on contaminated wells within the city confines for drinking water supply. In the mid-19th century many cities built centralized water supply systems. However, initially these systems provided raw river water without any treatment. Only after John Snow established the link between contaminated water and disease in 1854 and after authorities became gradually convinced of that link, water treatment plants were added and public health improved. Sewers were built since the 1850s, initially based on the erroneous belief that bad air (miasma theory) caused cholera and typhoid. It took until the 1890s for the now universally accepted germ theory of disease to prevail.

However, most wastewater was still discharged without any treatment, because wastewater was not believed to be harmful to receiving waters due to the natural dilution and self-purifying capacity of rivers, lakes and the sea. Wastewater treatment only became widespread after the introduction of federal funding in 1948 and especially after an increase in environmental consciousness and the upscaling of financing in the 1970s. For decades federal funding for water supply and sanitation was provided through grants to local governments. After 1987 the system was changed to loans through revolving funds.

1. Answer the questions:

1. When were American cities afflicted with major outbreaks of disease?
2. What didn't the fast-growing cities have?
3. What did John Snow do to improve public health?
4. Why was most wastewater still discharged without any treatment?
5. When was system changed? And how was it changed?

Piped water supply until 1948.

Make sure you know these words:

pipeline	- трубопровод
to dam	- перекрывать плотиной
aqueduct	- акведук, водопровод
tributary of	- приток (реки)
be impounded	- быть запруженным
spectacular	- впечатляющий

In the 1840s and 1850s the largest cities in the U.S. built pipelines to supply drinking water from rivers or lakes. However, the drinking water was initially not treated, since the link between waterborne pathogens and diseases was not yet well known. In 1842 New York City was one of the first cities in the U.S. to tap water resources outside the city limits. It dammed the Croton River in Westchester County, New York, and built an aqueduct from the reservoir to the city. Also in 1842, construction was completed on Chicago's first water works, with water mains made of cedar and a water intake located about 150 feet (46 m) into Lake Michigan. In 1848, Boston began construction of a water transmission system. A tributary of the Sudbury River was impounded creating Lake Cochituate, from where the Cochituate Aqueduct transported water to the Brookline Reservoir that fed the city's distribution system. In 1853 Washington, DC, followed suit by beginning the construction of the Washington Aqueduct to provide water from the Great Falls on the Potomac River.

In 1854, the British physician John Snow found that cholera was spread through contaminated water. As a result of his findings, several cities began to treat all water with sand filters and chlorine before distributing it to the public. Cities also began to construct sewers. As a result of water treatment and sanitation, the incidence of cholera and typhoid rapidly decreased. Slow sand filtration was initially the technology of choice for water treatment, later being gradually displaced by rapid sand filtration.

In the arid American Southwest, the water demand of rapidly growing cities such as Los Angeles exceeded local water availability, requiring the construction of large pipelines to bring in water from far-away sources. The most spectacular example is the first Los Angeles Aqueduct built between 1905 and 1913 to supply water from the Owens Valley over a distance of 375 km.

1. Read the text again and write down the correct endings of the sentences.

1. The drinking water was initially not treated, since the link between …….

2. In 1842 New York City was one of the first ……..

3. Also in 1842, construction was completed on Chicago's first ……

4. The Sudbury River was impounded creating Lake Cochituate, from where the Cochituate Aqueduct transported water to …….

5. The British physician John Snow found that …….

6. As a result of water treatment and sanitation, the incidence of …….

7. The water demand of rapidly growing cities such as Los Angeles exceeded local water availability, requiring ……

2. Match the following words with their definitions.

1. reservoir	a) a line of connecting pipes, often under the ground, used for sending gas, oil etc over long distances
2. construction	b)a lake, especially an artificial one, where water is stored before it is supplied to people's houses
3. distribution	c) something that you pass water, air etc through in order to remove unwanted substances and make it clean or suitable to use
4.filter	d) to provide people with something that they need or want, especially regularly over a long period of time
5. sewer	e) the act of sharing things among a large group of people in a planned way
6. pipeline	f) a pipe or passage under the ground that carries away waste material and used water from houses, factories
7.supply	g)the process of building things such as houses, bridges, roads etc

Water sources.

Make sure you know these words:

obtain	- получать; добывать
implementation of	- выполнение, исполнение
pure	- чистый; беспримесный
maintain	- поддерживать, удерживать
earthquake	- землетрясение
sustainable	-устойчивый, экологически рациональный
drought (period)	- засуха; засушливость
watershed	- бассейн реки , водораздел

About 90% of public water systems in the U.S. obtain their water from groundwater. However, since systems served by groundwater tend to be much smaller than systems served by surface water, only 34% of Americans (101 million) are supplied with treated groundwater, while 66% (195 million) are supplied with surface water.

For a surface water system to operate without filtration it has to fulfill certain criteria set by the EPA under its Surface Water Treatment Rule, including the implementation of a watershed control program. The water system of New York City has repeatedly fulfilled these criteria.

Cities supplied primarily by surface water without water treatment.

The Wachusett Reservoir is a source of drinking water supply for Boston.

Boston, New York City, San Francisco, Portland, Oregon and Denver are among the large cities in the U.S. that do not need to treat their surface water sources beyond disinfection, because their water sources are located in the upper reaches of protected watersheds and thus are naturally very pure. Boston receives most of its water from the Quabbin and Wachusett Reservoirs and the Ware River in central and western Massachusetts. New York City's water supply is fed by a 2,000-square-mile (5,200 km2) watershed in the Catskill Mountains. The watershed is in one of the largest protected wilderness areas in the United States. San Francisco obtains 85% of its drinking water from high Sierra snowmelt through the Hetch Hetchy Reservoir in Yosemite National Park. However, to supplement the imported water supply, and to help maintain delivery of drinking water in the event of a major earthquake, drought or decline in the snowpack, San Francisco considers the use of alternative locally produced, sustainable water sources such as reclaimed water for irrigation, local groundwater and desalination during drought periods, all as part of its Water Supply Diversification Program. The largest source of water supply for Portland, Oregon, is the Bull Run Watershed. Denver receives its water almost entirely from mountain snowmelt in a number of highly protected watersheds in more than 9 counties. Its water is stored in 14 reservoirs, the largest of which is the Dillon Reservoir on the Blue River in the Colorado River. Water is diverted from there through the Harold D. Roberts Tunnel under the Continental Divide into the South Platte River Basin.

1. Read the text and decide if the statements after it are true (T) or false (F).

1. About 90% of public water systems in the U.S. obtain their water from surface water. ( )
2. For a surface water system to operate using filtration it has to fulfill certain criteria set by the EPA under its Surface Water Treatment Rule. ( )
3. Some large cities in the U.S. that do not need to treat their surface water sources beyond disinfection. ( )
4. The watershed is in one of the largest protected wilderness areas in the United States. ( )
5. San Francisco doesn't obtain 85% of its drinking water from high Sierra snowmelt through the Hetch Hetchy Reservoir in Yosemite National Park. ( )
6. San Francisco considers the use of alternative locally produced, sustainable water sources such as reclaimed water for irrigation, local groundwater. ( )
7. Portland receives its water almost entirely from mountain snowmelt in a number of highly protected watersheds in more than 9 counties. ( )

2. Choose the following most suitable words to fill the gaps in the sentences below.

**** supplied * pure *received * earthquake *obtain * source * drinking***

1. This catastrophe - probably caused by an _____and explosion of gases - may be the reason.

2. Antibiotics and hormones used in human drugs have been detected in _____water and our rivers.
3. The sun is perhaps the least expensive energy _____we have.
4. To make life easier for the user a keyboard overlay is _____which carries the various options.
5. I'm sorry I didn't call earlier, but I've only just _____your message.
6. It felt good to get away from the city and breathe in some _____ mountain air.
7. Visitors must _____a wilderness hiking permit to enter the park.

Cities supplied primarily by surface water with water treatment.

The Schuylkill River provides 40% of the water used in Philadelphia.

Cities that rely on more or less polluted surface water from the lower reaches of rivers have to rely on extensive and costly water purification plants. The Las Vegas metropolitan area, obtains 90% of its water from Lake Mead on the Colorado River, which has been affected by drought. To supply a portion of the future water supply, Las Vegas plans to buy water rights in the Snake Valley in White Pine County, 250 mi (400 km) north of the city straddling the Utah border and other areas, pumping it to Las Vegas through a US$2 billion pipeline. Phoenix also obtains its drinking water primarily from the Colorado River further downstream at Lake Havasu through the Central Arizona Project. Los Angeles obtains about half of its

drinking water from the Owens River and Mono Lake through the Los Angeles Aqueduct, with additional supplies from Lake Havasu through the Colorado River Aqueduct. San Diego imports nearly 90 percent of its water from other areas, specifically northern California and the Colorado River.

The cities on the Mississippi River are supplied by water from that river except for Memphis. The metropolitan area of Atlanta receives 70% of its water from the Chattahoochee River and another 28% from the Etowah, Flint, Ocmulgee and Oconee rivers. Chicago is supplied by water from Lake Michigan and Detroit receives its water from the Detroit River. Philadelphia receives 60% of its water from the Delaware River and 40% from the Schuylkill River. Washington, DC receives its water from the Potomac River through the Washington Aqueduct.

1. Answer the questions:

1. Do cities have to rely on extensive and costly water purification plants?
2. Where does the Las Vegas metropolitan area obtain 90% of its water from?
3. Where does Phoenix also obtain its drinking water from?
4. Are the cities on the Mississippi River supplied by water from that river or from other river?
5. What state does receive its water from the Potomac River?

2. Complete the table.

State	***% of its water***	***Obtains its drinking water from***
1.		
2.		
3.		
4.		
5.		
6.		
7.		

Water use.

Match the following words and translations.

1. domestic	a. причина, повод, основание
2. residential	b. (домашнее) хозяйство; двор, дом
3. reason	c. доля, часть
4. per capita	d. масса, большое количество
5. share	e. домашний
6. household	f. водопроводная вода
7.a bulk	g. на человека, на душу населения
8. fear	h. взгляд, мнение, точка зрения
9. tap water	i. бояться, страшиться
10. notion	j. жилой (о районе города)

Domestic water use (also called home or residential water use) in the United States was estimated by the United States Geological Survey at 29.4 billion US gallons (111,000,000 m3) per day in 2005. The bulk of domestic water is provided through public networks. 13% or 3.8 billion US gallons (14,000,000 m3) of water is self-supplied. The average domestic water use per person in the U.S. is 98-US-gallon (370 L) per day. This is about 2.5 times as high as in England (150 Liter) and three times as high as in Germany (126 Liter).

One of the reasons for the high domestic water use in the U.S. is the high share of outdoor water use. For example, the arid West has some of the highest per capita domestic water use, largely because of landscape irrigation. Per capita domestic water use varied from 51-US-gallon (190 L) per day in Maine to 189-US-gallon (720 L) per day in Nevada. According to a 1999 study, on average all over the U.S. 58% of domestic water use is outdoors for gardening, swimming pools etc. and 42% is used indoors.

Indoor use falls into the following categories*:*

31% Toilets
2% Baths
19% Showers
25% Clothes Washers
2% Dishwashers
18% Faucets
3% Other Domestic Uses

Only a very small share of public water supply is used for drinking. According to one 2002 survey of 1,000 households, an estimated 56% of Americans drank water straight from the tap and an additional 37% drank tap water after filtering it. 74% of Americans said they bought bottled water. According to a non-representative survey conducted among 216 parents (173 Latinos and 43 non-Latinos), 63 (29%) never drank tap water. The share is much higher among Latinos (34%) than among non-Latinos (12%). The study concluded that many Latino families avoid drinking tap water because they fear it causes illness, resulting in greater cost for the purchase of bottled and filtered water. This notion is also repeated among Asians.

1. Find the necessary ending to the following sentences.

1. The bulk of domestic water is provided through public networks. 13% or	a. person in the U.S. is 98-US-gallon (370 L) per day.
2. The average domestic water use per	b. of the highest per capita domestic water use, largely because of landscape irrigation.
3. The arid West has some	c. among 216 parents (173 Latinos and 43 non-Latinos), 63 (29%) never drank tap water.
4. On average all over the U.S. 58% of domestic	d. drinking tap water because they fear it causes illness.
5. An estimated 56% of Americans drank water	e. 3.8 billion US gallons (14,000,000 m3) of water is self-supplied.
6. According to a non-representative survey conducted	f. straight from the tap and an additional 37% drank tap water after filtering it.
7. The study concluded that many Latino families avoid	g. water use is outdoors for gardening, swimming pools etc. and 42% is used indoors.

Pollution control.

Numerous efforts have been undertaken in the United States to control the pollution of water resources and to make drinking water safe. The most comprehensive federal regulations and standards for the water treatment industry were implemented in the 1970s, in reaction to a huge increase in environmental concerns in the country. In 1972, Congress passed the Clean Water Act, with the

unprecedented goal of eliminating all water pollution by 1985 and authorized expenditures of $24.6 billion in research and construction grants. In 1974, Congress passed the Safe Drinking Water Act, specifying a number of contaminants that had to be closely monitored and reported to residents should they exceed the maximum contaminant levels. Both Acts were complemented by substantial federal grant funding to improve infrastructure in the form of construction grants.

In 1987 Congress, through the Water Quality Act, passed an amendment of the Clean Water Act, abolishing construction grants and replacing them by a system of subsidized loans using the Clean Water State Revolving Fund. The intention at the time was to completely phase out federal funding after a few years. Funding for the CWSRF peaked in 1991 and continued at high levels thereafter, despite the original intentions. New challenges arose, such as the need to address combined sewer overflows for which EPA issued a policy in 1994. In 1997 Congress established the Drinking Water State Revolving Fund, in order to finance investments to improve compliance with more stringent drinking water quality standards.

Today cities make significant investments in the control of combined sewer overflows, including through the construction of storage facilities in the sewerage system in order to allow for the subsequent controlled release of sewage into treatment plants.

1. Read the text and decide if the statements after it are true (T) or false (F).

1. The most comprehensive federal regulations and standards for the water treatment industry weren't implemented in the 1980s, in reaction to a huge increase in environmental concerns in the country. ( )
2. In 1972, Congress passed the Clean Water Act, with the unprecedented goal of eliminating all water pollution by 1985. ( )
3. In 1974, Congress couldn't pass the Safe Drinking Water Act, specifying a number of contaminants that had to be closely monitored and reported to residents. ( )
4. Both Acts were able to improve infrastructure in the form of construction grants. ( )
5. Funding for the CWSRF peaked in 1997 and continued at high levels thereafter, despite the original intentions. ( )
6. Congress established the Drinking Water State Revolving Fund, in order to finance investments to improve compliance with more stringent drinking water quality standards. ( )
7. Today cities don't make any significant investments in the control of combined sewer overflows, through the construction of storage facilities in the sewerage system. ( )

Bottled water in the United States.

The United States is the largest consumer market for bottled water in the world, followed by Mexico, China, and Brazil. In 2008, U.S. bottled water sales topped 8.6 billion US gallons (33,000,000 m3) for 28.9% of the U.S. liquid refreshment beverage market, exceeding sales of all other beverages except carbonated soft drinks, followed by fruit juices and sports drinks. Americans drink 21 US gallons (79 L) of bottled water per capita per year.

Sources

About 25% of U.S. bottled water sold is purified municipal water according to a four-year study by the Natural Resources Defense Council (NRDC). Both Aquafina from PepsiCo and Dasani from The Coca-Cola Company originate from municipal water systems. However according to the FDA, about 75 percent of bottled water sold in the U.S. comes from other sources, including "natural underground sources, which include rivers, lakes, springs and artesian wells." Federal regulations also require that the standard of identity be noted on the bottle label.

Regulation

Bottled water is regulated by the Food & Drug Administration according to standards of identity, standards of quality and good manufacturing practices.

Standards of identity define types of water for labeling purposes:

*To be called ground water, the water must not be under the direct influence of surface water.

*Water containing not less than 250 parts per million of total dissolved solids is mineral water.

*Artesian water comes from a well tapping a confined aquifer in which the water level stands at some height above the top of the aquifer; it may be collected with the assistance of external force to enhance the natural underground pressure.

*Water that has been produced by distillation, deionization, reverse osmosis or similar processes is purified or demineralized water.

*Sparkling water contains the same amount of carbon dioxide that it had at emergence from the source, although it may be removed and replenished in treatment.

*Spring water must be derived from an underground formation from which water flows naturally to the Earth's surface.

*Sterile water meets the requirements under "sterility tests" in the United States Pharmacopoeia.

*Well water is water that has been removed from a hole bored or drilled in the ground which taps into an aquifer.

Standards of quality regulate acceptable levels of the water's turbidity, color and odor, according to sample analysis. Exemptions are made according to aesthetically based allowable levels, and do not relate to health concerns. An example is mineral water, which is exempt from allowable color levels.

1. Make up a summary of the article "Bottled water in the United States" completing the phrases below.

1. The headline of the article is **……**

2. The paper -is about……

   - carries information on …..
   - informs the reader of ……

3. The article widely covers the problem of ……

4. The author stars by telling the reader ……

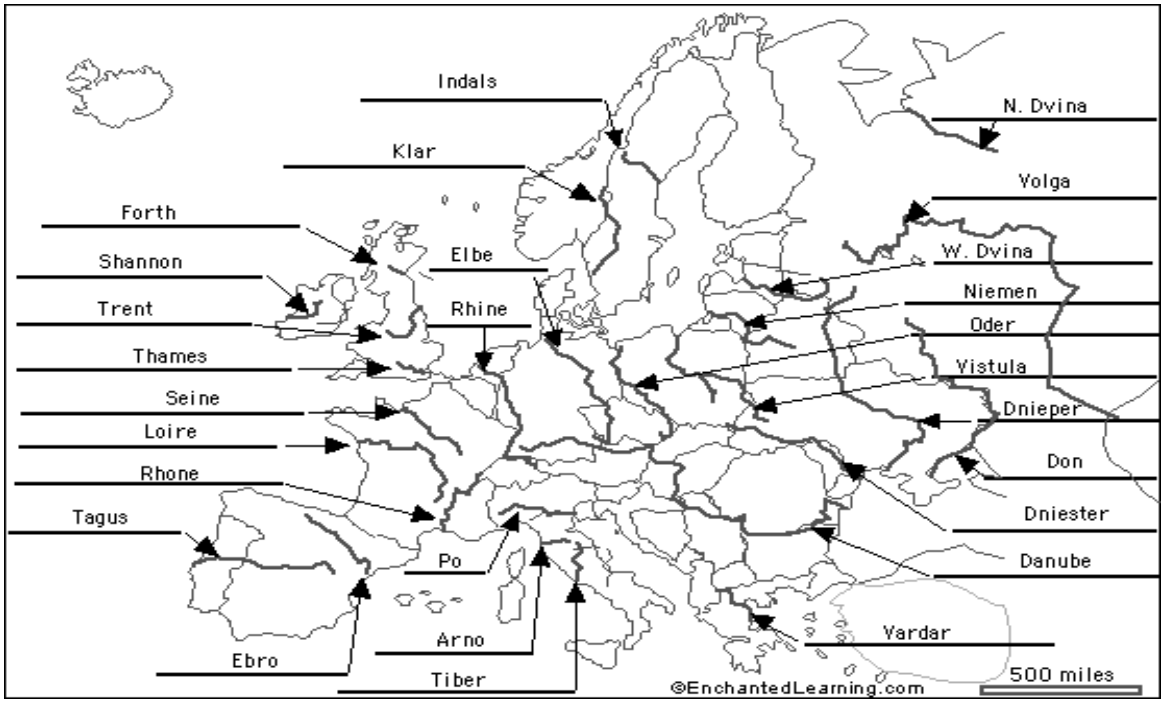
5. The article characterizes analyses, explains, describes, presents ……..

6. In conclusion the paper point out that ……..

7. The paper surveys briefly (presents some interesting facts about)…….

UNIT 5.

Water supply and sanitation in the European Union.



Make sure you know these words:

to impact	- сильно воздействовать
diversity	- разнообразие; многообразие
to enact	- устанавливать; вводить закон
enactment	- принятие закона
a purview	-сфера применения закона, постановления
unsatisfactory	- неудовлетворительный
nitrogen	- азот
to trigger (substantial investment)	- дать начало (основным инвестициям)
rural	- деревенский, сельский
inhabitant	- житель, обитатель
financial burden	- финансовые затруднения
to impose	- облагать (налогом и т. п.)

Water Supply and Sanitation (WSS) in the European Union (EU) is still under the responsibility of each member state. Nevertheless, the EU established some policies which impact the National water strategies tremendously. However, WSS evolved in every Member State independently until the policies of the EU could influence the local policies during the 21st century. The diversity of approaches towards WSS in Europe is a chance to a variety of possible solutions but also a source of challenges. Limited water resources as well as other pressures to water supply and sanitation systems (urbanization, climate change, etc.) are source and manifestation of current challenges for the EU in the water sector.

The water policy of the EU is primarily codified in three directives:

*The Urban Waste Water Treatment Directive (91/271/EEC) of 21 May 1991 concerning discharges of municipal and some industrial waste waters;

*The Drinking Water Directive (98/83/EC) of 3 November 1998 concerning potable water quality;

*The Water Framework Directive (2000/60/EC) of 23 October 2000 concerning water resources management.

EU member states have enacted national legislation in accordance with these directives. The institutional organization of public water supply and sanitation does not fall under the purview of the EU, but remains a prerogative of each member state.

Implementation challenges.

The European Commission published three reports on the implementation of the directive, the latest in 2004. The report noted that the wastewater treatment situation in Europe is still very unsatisfactory and that none of the deadlines has been met by all member countries. Only Austria, Denmark and Germany fully complied with the directive. The report noted that BOD levels in European rivers have been reduced by 20-30 percent since the enactment of the directive, but that other pollution parameters such as nitrogen levels remained high. The reason is that much of the nitrogen pollution comes from non-point sources in agriculture, and the still insufficient nutrient removal by wastewater treatment plants. The eutrophication of the Baltic Sea, North Sea and considerable parts of the Mediterranean thus remains a "severe problem". The report also noted that it is estimated that more than 50 percent of the discharges into sensitive areas was not treated sufficiently. Even for non-sensitive areas, although the picture was less bleak, only 69% of the discharge received treatment and the 2000 deadline was not met by most member countries. 25 out of 556 cities in the EU still had no wastewater treatment system at all.

The directive triggered substantial investment in wastewater treatment throughout the EU. A controversial aspect of the directive is the requirement for all agglomerations with more than 2 000 inhabitants to have a wastewater collection system, which has been widely interpreted as requiring connection to a sewer system even if existing on-site sanitation systems perform adequately. The cost of connecting houses to sewers in small rural towns with dispersed housing patterns is often very high and imposes a high financial burden on users.

According to the European Commission, the directive represents the most cost intensive European legislation in the environmental sector. The EU estimates that 152 billion Euro were invested in wastewater treatment from 1990 to 2010. The EU provides support for the implementation of the directive in the order of 5 billion Euro per year.

1. Answer the questions:

1. Who is responsible for Water Supply and Sanitation (WSS) in the European Union (EU)?
2. How many directives has the water policy of the EU?
3. Does the institutional organization of public water supply and sanitation fall under the purview of the EU?
4. When and how many reports were published by the European Commission?
5. What countries did fully comply with the directive?
6. What did the directive do in the EU?
7. How much Euro were invested in wastewater treatment from 1990 to 2010?

2. Read the text again and write down the correct endings of the sentences.

1. The EU established some policies which impact ……..

2. The diversity of approaches towards WSS in Europe is a chance to ……

3. EU member states have enacted ……

4. The report noted that the wastewater treatment situation in Europe is still very …….

5. The reason is that much of the nitrogen pollution comes from non-point sources …….

6. The report also noted that it is estimated that more than 50 percent of the discharges ……..

7. Only 69% of the discharge received treatment and the 2000 deadline was not met by …….

8. A controversial aspect of the directive is the requirement for all …….

9. According to the European Commission, the directive represents …….

3. Choose the following most suitable words to fill the gaps in the sentences below.

****publish * tremendous * waste * rural * requirement * financial * support***

1. The progress that has been made in microelectronics is_____.
2. The average daily food _____for an adult is between 2000 and 3000 calories.
3. He failed to get _____support from his employers.
4. Industrial _____had leaked into the water supply.
5. I couldn't have finished my degree without the _____of my family.
6. We _____mainly textbooks and other educational materials.
7. There continues to be a shortage of jobs for young people in many _____areas.

Drinking water directive of 1998.

The Directive is intended to protect human health by laying down healthiness and purity requirements which must be met by drinking water within the Community. It applies to all water intended for human consumption apart from natural mineral waters and waters which are medicinal products.

Member States shall ensure that such drinking water:

*does not contain any concentration of micro-organisms, parasites or any other substance which constitutes a potential human health risk;

*meets the minimum requirements (microbiological and chemical parameters and those relating to radioactivity) laid down by the directive.

*They will take any other action needed in order to guarantee the healthiness and purity of water intended for human consumption.

In setting contaminant levels the directive applies the precautionary principle. For example, the EU contaminant levels for pesticides are up to 20 times lower than those in the WHO drinking water guidelines, because the EU directive not only aims at protecting human health but also the environment. The WHO contaminant levels themselves are already set so that there would be no potential risk if the contaminant was absorbed continuously over a person's lifetime. EU drinking water standards and cases where these standards are temporarily exceeded by a small margin should be interpreted in this context.

Compared to the previous European drinking water directive of 1980 the number of parameters has been reduced, allowing member to add parameters such as magnesium, total hardness, phenols, zinc, phosphate, calcium and chlorite.

The directive requires member states to regularly monitor the quality of water intended for human consumption by using the methods of analysis specified in the directive, or equivalent methods. Member states also have to publish drinking water quality reports every three years, and the European Commission is to publish a summary report. Within five years Member States had to comply with the Directive. Exemptions can be granted on a temporary basis, provided that they do not affect human health.

1. Find the necessary ending to the following sentences.

1. The Directive applies to all water intended for human consumption apart from	a. the EU directive not only aims at protecting human health but also the environment.
2. They will take any other action needed in order to	b. to add parameters such as magnesium, total hardness, phenols, zinc, phosphate, calcium and chlorite.
3. The EU contaminant levels for pesticides are up to 20 times lower than those in the WHO drinking water guidelines, because	c. monitor the quality of water intended for human consumption.

4. EU drinking water standards and cases where these standards are	d. natural mineral waters and waters which are medicinal products.
5. The previous European drinking water directive of 1980 the number of parameters has been reduced, allowing member	e. years, and the European Commission is to publish a summary report.
6. The directive requires member states to regularly	f. temporarily exceeded by a small margin should be interpreted in this context.
7. Member states also have to publish drinking water quality reports every three	g. guarantee the healthiness and purity of water intended for human consumption.

2. Write down some sentences about the article* "Drinking water directive of 1998" *beginning the phrases below.

The headline of the article is **……**

It deals with …….

The article widely covers the problem of ……

It carries information on ……..

The paper describes …….

In conclusion ……

Water Supply and Sanitation.

Access

Average connection rates between 80%-90% are reported for Northern, Southern and Central Europe. Eastern Europe still copes with much lower rates of 40%-65% of the population connected to primary waste water treatment at least. Nevertheless, Europe in general is improving: Over the last decade more households accessed to public treatment plants or even upgraded the treatment system (e.g. from secondary to tertiary treatment).

Service quality.

As access is dependent on each member state so is service quality. It ranges from very good service quality in Northern and Southern States of the European Union for example in Spain or Germany to insufficient or poor services especially in Eastern European states. The history of WSS within the member states and different states in development can partly explain the heterogeneous state of the supply and treatment systems.

History of WSS sector.

The supply of water and its disposal has been managed in Europe for many centuries. Centralised water supply and sanitation started with the Romans who were responsible for the construction of aqueducts and systems to collect and distribute water. During the Middle Ages water was distributed through private carriers or/and organized through local communities or cities. The industrial revolution and the construction of modern industrialised conurbations in Europe was dependant upon managed water supplies. The United Kingdom was pioneered urban planning at that time.

The time of industrialisation and development of cities (between 1800-1900) in terms of WSS is called the time of simple regime followed by the regimes of lower complexity between 1900-1950, medium (1980-1970), high complexity (1970-1985) and the era finally ended up in an so called attempt of integration from 1985 onwards. The terms reflect the approach of most (Western) European countries towards WSS at that time. It steadily developed from privately organized cooperations to governmental influenced systems. Together with water management in general, it nowadays comes back to private initatives manifested in Public-Private cooperations.

1. Ask as many questions to the text as possible. Use all types of questions.

1. _____?
2. _____?
3. _____?
4. _____?
5. _____?
6. _____?
7. _____?
8. _____?
9. _____?

2. Make up a summary of the article* "Water Supply and Sanitation" *completing the phrases below.

1. The headline of the article is **……**
2. The paper -is about……
   - carries information on …..
   - informs the reader of ……
3. The article widely covers the problem of ……
4. The author stars by telling the reader ……
5. The article characterizes analyses, explains, describes, presents ……..
6. In conclusion the paper point out that ……..
7. The paper surveys briefly (presents some interesting facts about)…….

UNIT 6.

WATER SUPPLY AND SANITATION IN FRANCE.

1. Match the following words with their definitions.

1. participation	1. a place where water comes up naturally from the ground
2. sanitation	2. when you keep or put something in a special place while it is not being used
3. improved (water)	3. the act of taking part in an activity or event
4. well	4.when it becomes bigger in amount, number,
5. spring	5. part of a town consists of private houses, with no offices or factories
6. tank	6. a deep hole in the ground from which people take water
7. to increase	7. better than before
8. residential	8. the protection of public health by removing and treating waste, dirty water etc
9. storage	9. a large container for storing liquid or gas

2. Choose the most suitable words from ex.1 above to fill the gaps in the sentences below.

1. It is understandable: the child considers himself safe in the _____street.
2. Scientists in the area have welcomed Native _____but maintain that traditional knowledge is also limited.
3. I put some of my things in_____.
4. The hot _____in the mountain smell of sulfur.
5. Garrett believes the new system will allow him to lower prices and provide _____service to customers.
6. The centrepiece of the courtyard was a deep_____.
7. Health care costs _____from £1.9 billion in 2000 to £4 billion in 2001.
8. Everywhere there is a total lack of understanding about hygiene, antisepsis, and the importance of_____.
9. The hot water _____is leaking.

Water supply and sanitation in France is universal and of good quality. Salient features of the sector compared to other developed countries are the high degree of private sector participation using concession and lease contracts (gestion déléguée) and the existence of basin agencies that levy fees on utilities in order to finance environmental investments. Water losses in France (26%) are high compared to England (19%) and Germany (7%).

Access to improved water supply and to adequate sanitation in France is universal. However, not every household has access to water from the network or disposes its wastewater through sewers.

Concerning water supply, according to a survey undertaken by the Ministry of Agriculture in 1995, 370,000 permanent inhabitants in rural areas (0.5% of the total population) did not have access to piped water supply. They are supplied by 30,000 water points, most of them wells. The government plans to increase the access rate to 100 %, improve water quality by establishing protection areas around wells and springs, and to increase the reliability of water supply by increasing production, storage and interconnection of existing networks.

Concerning sanitation, while most of the population is served by sewers, according to one source about 12 million people (18%) out of 65 are served by on-site sanitation systems such as septic tanks. The above-mentioned inventory by the Ministry of Agriculture notes that out of 40m inhabitants of rural areas – 25m permanent and 15m seasonal inhabitants – 21m are connected to a sewer system, 10.6m should be connected and 9.6m cannot be connected. The total of those not connected to sewers (20.2 million) is higher because it includes seasonal inhabitants. The government intends to increase the coverage to the sewer networks in rural areas, in particular in ecologically vulnerable zones.

Water use

According to the Centre d'Information sur l'Eau (CIEAU) residential water use in France is for the following uses:

39 % for baths and showers

20 % for toilets

12 % for washing clothes

10 % for washing dishes

6 % for food preparation

6 % for other residential uses

6 % for outdoor uses (lawn watering and washing cars)

1 % for drinking

Water sources.

Total domestic water use in France is about 6 billion cubic meters or only about 3 percent of total runoff (191 billion cubic meters). 62 percent of drinking water supply is from groundwater and 38 percent from surface water.

The Canal de Marseille, shown here entering a tunnel near Coudoux, supplies two thirds of the drinking water of Marseille from the Durance River.

Service quality.

Service quality is generally good with continuous water supply. In early 2008 private operators published for the first time consolidated performance indicators on service quality. It showed that 99.7% of samples complied with bacteriological standards for drinking water quality, but only 82.3% of samples complied with standards for the discharge of treated wastewater. The share of unplanned water service interruptions was less than 3%. The indicators do not include statistics on sewer overflows. A decree of May 2007 requires public service providers to provide the same information on service quality to the public that has been provided by private service providers, beginning in 2008.

According to a 2008 survey by the water information centre C.I.Eau 81% of respondents think that tap water is safe to drink. As in other EU countries, water quality monitoring is carried out at two levels, first by the service provider on a permanent basis, and second by the authorities on a sample basis.

The lack of wastewater treatment in some cities and towns discharging wastewater into sensitive areas is another matter of concern. In January 2008 the

European Commission sent France a final warning alerting it that it will be taken to the European Court of Justice (ECJ) for the second time and possibly face fines unless it quickly brings its waste water treatment up to EU standards. France is not complying with the 1991 EU directive on urban waste water treatment. The deadline for treating all wastewater covered by the directive was 31 December 2000. In 2004 the European Court of Justice (ECJ) condemned France for failing to designate eleven areas as sensitive and for inadequate treatment facilities in a number of settlements which discharge their waste waters into these areas. The ECJ also found that 121 settlements breached the directive by discharging their waste waters into previously designated sensitive areas. In 2006 France designated the eleven areas as sensitive. However, 140 settlements – including the city of Paris – continue to discharge into these sensitive areas. With regard to the 121 settlements discharging into the previously designated sensitive areas France proceeded to rearrange them into 164 settlements, resulting in some settlements no longer meeting the threshold level of 10,000 residents at which the directive applies. The Commission considers such rearranging of settlements to avoid compliance with the directive unacceptable. In November 2009 it referred the matter to the ECJ.

1. Complete the table.

Date	**Events**

Responsibility for water supply and sanitation.

Water supply, sewerage and wastewater treatment is a municipal responsibility in France. Many municipalities, in particular the smaller ones, have created municipal associations in order to benefit from economies of scale. Municipalities and municipal associations often contract out water supply and/or sanitation services to the private sector through long-term lease contracts (affermage).

Six water agencies plan the management of water resources, collect fees for the abstraction of water from rivers and aquifers as well as for the discharge of wastewater to the environment, and use the proceeds to subsidize investments in water supply and sanitation.

At the national level, no single Ministry is in charge of the sector and a variety of Ministries and other entities have attributions concerning specific aspects of the sector.

Policy and regulation.

National level The legal framework for water resources management, water supply and sanitation consists of two main laws: The Loi sur l'eau (Water Law) of 3 January 1992, and the Loi sur l'eau et les milieux aquatiques (Water and Aquatic Environment Law) of 30 December 2006. The latter transposes the EU Water Framework Directive into French law.

At the level of the national government, several Ministries have a role in determining policies for water supply and sanitation: The Ministry of Ecology, Energy, Sustainable Development and Territorial Planning (Meeddat), the Ministry of Health (in charge of monitoring drinking water quality), the Ministry of Interior (in charge of supervising local government) and the Ministry of Economy and Finance (which supervises the Water Agencies together with the Ministry of Ecology).

Environmental regulation is the responsibility of the Ministry of Ecology. Wastewater discharge standards, drinking water quality standards and the framework for water resources management are defined by the European Union through various directives (see EU water policy). The country's six water agencies (Agences de l'Eau, formerly Agences de Bassins) play an important role to bring together stakeholders at the basin level in a "Water Parliament", in levying water abstraction fees and wastewater discharge fees, and in financing infrastructure with the revenues from these fees.

A National Office for Water and the Aquatic Environment (Onema) was created in 2007 under the Ministry of Ecology with the objectives of developing the knowledge of and information about water resources and their uses; enforcing legislation related to water; and to assist local and regional governments in planning the use of water resources. Onema has a good presence on the ground through nine interregional offices and departmental offices. Its functions are related to water resources and not to water supply and sanitation.

Unlike in a few other countries (such as England and Wales, Portugal or Chile) there is no national regulatory agency in France that would approve tariffs and set and control service standards. There are also no regulatory agencies at the level of the Regions and Departments, unlike in US states. The economic regulation of private service provision is undertaken purely by contract through the municipality.

However, the Cour des Comptes (National Audit Entity) plays a role in monitoring water and sewer tariffs as well as expenditures by utilities.

Local level At the local level, in municipalities with more than 10,000 inhabitants Consultative Commissions for Local Public Services assist municipalities in regulating service providers. The Commissions were created through the 1992 water law. After the commissions initially met with little success, they were strengthened through another law in 2002. Their purpose now is to provide better information on public services through the review of annual reports by the service providers and to be consulted on key decisions such as the delegation of service provision to the private sector or the creation of a municipal enterprise. The consultative commissions are usually chaired by the mayor and their members are members of the municipal council or are nominated by the municipal council. According to a 2003 report by the Cour des Comptes only few Consultative Committees have been created and, where they have been created, they have sometimes never met.

1. Complete the table.

National level	*Local level*
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.
7.	7.

Financial aspects. Tariffs.

Water and sanitation tariffs in France vary substantially from one service provider to the other. The six French public water agencies regularly publish the results of water tariff surveys (Observatoires de Prix) that they carry out among service providers in the respective areas they cover comparting tariff levels.

According to a 2003 study by the French Supreme Audit Agency (Cour des Comptes), the complexity of water tariffs makes them difficult to understand for users despite efforts to improve the presentation of water bills. The agency also states that flat-rate tariffs that are not linked to consumption levels still persist, although the 1992 water law aimed at linking water tariffs to consumption.

International comparison of tariff level According to a study by NUS consulting, in 2007 the average residential water and sanitation tariff for the five largest cities in France was € 2.92 per cubic meter for a consumption of 120 cubic meters per connection and year. This was lower than the average of 11 EU countries in the same year, which was € 3.25 per cubic meter. According to the same study tariffs were highest in Denmark (€ 5.63/m3) and Germany (€ 5.09/m3).

However, for commercial tariffs the picture is somewhat different. According to another study by NUS consulting the average water tariff (without sanitation) in France for a consumption of 10,000 cubic meters pere year was the equivalent of US$ 1.58, the 5th most expensive out of the 14 countries considered in the study. In the 14 mainly OECD countries tariffs excluding VAT varied between US$ 0.66 per cubic meter in the United States and the equivalent of US$ 2.25 per cubic meter in Denmark.

According to a study commissioned by the German water industry association BGW in 2006, the picture is again somewhat different. This study does not compare tariffs per cubic meter, but average water bills. The average annual per capita water bill was 85 Euro in France, the same as in Germany (85 Euro), higher than in Italy (59 Euro) and lower than in England and Wales (95 Euro).

Comparison of annual water and sanitation bills per capita in four EU countries

	Water tariff	***Sewer tariff***	***Total***
Germany	85 Euro	111 Euro	196 Euro
England and Wales	95 Euro	93 Euro	188 Euro
France	85 Euro	90 Euro	175 Euro
Italy	59 Euro	40 Euro	99 Euro

Costs and affordability.

In the year 2005

*46 % of water and sanitation tariffs were linked to water treatment and distribution;

*37 % were linked to wastewater collection and treatment;

*17 % corresponded to fees and taxes.

Fees are destined to the six water agencies at the basin level mentioned above. Taxes include a water consumption tax and VAT.

According to a study by the consulting firm BIPE drawing on national statistics the share of household expenditures devoted to water and sewer bills was 0.8% and the average annual water and sewer bill was 374 Euro per household in 2005.

***1. Make up questions about* Financial aspects. Tariffs.**
And ask the group mates.

1)_____?
2)_____?
3)_____?
4)_____?
5)_____?
6)_____?
7)_____?
8) _____?
9) _____?
10) _____?

Financing

Investments are financed from a variety of sources. In 2006 investments were financed by municipalities (58%), Water Agencies (18%), private water companies (13%) and subsidies from the Départements and regions (11%). The contribution by municipalities is fully financed from tariff revenues collected for water and sanitation services, as well as by substantial fees (part collectivité) paid by private operators to the municipalities (Euro 2bn in 2006, or 30% of the amount billed by private operators) for the costs of investments (service budget of the municipality). Only in the case of municipalities with less than 3,000 inhabitants some limited tax revenue (general budget) is used to finance water and sanitation investments. The basin agencies finance themselves through charges for water abstraction and wastewater discharge by utilities and industries.

In rural areas, investment subsidies are available from the National Fund for the Development of Water Supply (Fonds National pour le Développement des Adductions d'Eau, FNDAE) This fund, created in 1954, is funded by a surcharge on all water bills (55% of funding) and by a share in the revenues of the public agency in charge of organizing horse race betting, the Pari Mutuel Urbain (45%). The FNDAE has an annual budget of 145m Euro. It is managed by the Ministry of Agriculture and Fisheries and its departmental branches.

1. Read the text again and write down the correct endings of the sentences.

1. Investments are financed from ……...
2. The contribution by municipalities is fully financed from ……
……
3. The basin agencies finance themselves through ……
4. This fund, created in 1954, is funded by ……
5. The FNDAE has an annual budget of ……

Decentralized international cooperation.

Some municipalities and water agencies are engaged in international cooperation to improve access to water supply and sanitation in developing countries. As opposed to "centralized" international cooperation implemented by the French Development Agency or multilateral development banks, in France this form of aid is called decentralized cooperation. In 2002 the Court of Audit of France condemned decentralized cooperation by water agencies as contrary to their objectives. In response, the conservative member of Parliament André Santini, President of the Council of the Water Agency for Seine-Normandie and President of SEDIF, the utility in charge of water supply in the region of Paris, introduced a law passed in 2005 named after himself and former Senator Jacques Oudin. The Loi Oudin-Santini allows water agencies and municipal water companies to spend up to 1% of their budget on international cooperation. According to the NGO psEau the law could mobilize up to Euro 100 million. However, far from all water companies make use of the option provided by the law. The NGO s-eau-s (pronounced SOS) criticized the law, because it allegedly promotes the "export of the French water management model" and the "conquest of markets by big French water companies".

1. Fill in the gaps in the sentences given below, using the words from the list.

**** development * international * market * cooperation *to) supply * budget * access***

1. The goal of the program is to increase_____ understanding and good will.

2. The country has experienced impressive economic _____in the past decade.

3. City officials are considering building a path to give the public _____to the ruins.

4. Government cuts in the defence _____have meant a loss of 2000 jobs.

5. Thank you for your _____and your participation

6. You occasionally see eel in the fish_____, but it's quite rare these days.

7. The company _____fish to local shops and restaurants.

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CONTENT

НАВЧАЛЬНЕ ВИДАННЯ

Методичні вказівки для самостійної роботи з дисципліни «Іноземна мова» (англійська мова) для студентів 2 курсу заочної форми навчання освітньо-кваліфікаційного рівня бакалавр напряму підготовки 6.060103 – «Гідротехніка (Водні ресурси)» спеціальності «Водопостачання та водовідведення».

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